

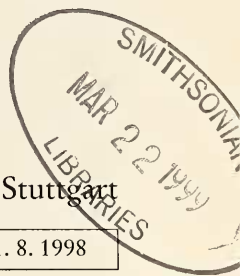
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### *Curimata vari*, a New Curimatid Fish (Characiformes: Curimatidae) from Santa Catarina, Brazil

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With 1 figure and 1 table

#### Summary

*Curimata vari* n. sp. is described from the Rio Cubatao in southeastern Brazil (27°41'30"S). It is a member of the lineage *C. cisandina* (Amazon system), *C. inornata* (Amazon system) and *C. roseni* (Rio Negro) which is characterized by a low number of tubular pored scales in the lateral line, a short head, the presence of a midlateral stripe from below the posterior end of the dorsal fin to the caudal peduncle (stripe broadening caudally), and a discrete black mid-dorsal stripe from the rear of the rayed dorsal fin to beyond the adipose fin. *Curimata vari* is the first species of the genus to be found south of 6°45'S.

#### Zusammenfassung

*Curimata vari* n. sp. wird vom Rio Cubatao in Südostbrasilien (27°41'30"S) beschrieben und gehört zu der Artengruppe *C. cisandina* (Amazonas-Gebiet), *C. inornata* (Amazonas-Gebiet) und *C. roseni* (Rio Negro). Charakteristisch für diese neue Art sind eine geringe Anzahl von Schuppen in der Seitenlinie und der relativ kurze Kopf. Die Körperseiten tragen ein breites Band, das unterhalb des Rückenflossenendes beginnt und sich bis zum Schwanzstiel erstreckt, wo es sich verbreitert. Ein schwarzer Streifen erstreckt sich vom Ende der Dorsalflosse bis hinter die Fettflosse. *Curimata vari* ist die erste Art der Gattung, die südlich von 6°45'S gefunden wurde.

#### 1. Introduction

Species of the genus *Curimata* have moderate body sizes (up to 225 mm standard length). The genus is recognized as a monophyletic subunit of the family Curimatidae on the basis of six synapomorphies in the buccopharyngeal complex, the gill arches and the palatine arch (VARI, 1989a). It is characterized by three large fleshy folds with additional parallel secondary folds in the roof of the mouth in adults, by the complete lateral line and a maximum of 76 lateral line scales between supraclei-

thrum and hypural joint (VARI, 1989a). The genus is distributed in the lowlands of South America; a single species of *Curimata* is found in trans-Andean South America, while 12 species were known from east of the Andean mountain range.

A key to the eight genera of the family Curimatidae was given by VARI (1992b). During the past 15 years, VARI revised all genera of the family: *Curimata* (VARI, 1989a), *Curimatella* (VARI, 1992b), *Curimatopsis* (VARI, 1982), *Cyphocharax* (VARI, 1992a), *Potamorhina* (VARI, 1984a), *Psectrogaster* (VARI, 1989b), *Pseudocurimata* (VARI, 1989c) and *Steindachnerina* (VARI, 1991). ESCHMEYER (1990) considered the genus *Curimata* (BOSC, 1817) as valid.

In 1889, EIGENMANN & EIGENMANN recognized 39 species of *Curimata*. Even more recently, curimatid species which were first described under the generic name *Curimata*, were later assigned to other genera of the family (e.g. BRITSKI, 1980: now *Cyphocharax vanderi*; VARI & GÉRY, 1985: now *Steindachnerina fasciata*; VARI & NIJSEN, 1986: now *Cyphocharax punctatus*; BRAGA & AZPÉLICUETA, 1987: now *Steindachnerina biornata*; VARI, 1987: now *Cyphocharax spilotus*). VARI (1992a) synonymized *Curimata gnaca* Azpelicueta & Braga, 1988 with *Cyphocharax spilotus* (VARI, 1987). VARI (1989a) restricted the genus *Curimata* to 12 species: *C. aspera* Günther, 1868 (upper Rio Amazonas) (GÜNTHER, 1868); *C. cerasina* VARI, 1984 (Rio Orinoco) (VARI, 1984b); *C. cisandina* (Allen in EIGENMANN & ALLEN, 1942) (Rio Amazonas system); *C. cyprinoides* (Linné, 1766) (lower Rio Orinoco) (LINNÉ, 1766), *C. incompta* VARI, 1984 (Rio Orinoco basin); *C. inornata* VARI, 1984 (Rio Amazonas system); *C. knerii* Steindachner, 1877 (middle and upper Rio Amazonas) (STEINDACHNER, 1877); *C. macrops* Eigenmann & Eigenmann, 1889 (Rio Parnaíba); *C. mivartii* Steindachner, 1878 (Rio Magdalena and associated rivers) (STEINDACHNER, 1878); *C. ocellata* Eigenmann & Eigenmann, 1889 (Rio Amazonas basin); *C. roseni* VARI, 1988 (Rio Negro); *C. vittata* Kner, 1859 (Rio Amazonas system) (KNER, 1859).

VARI & REIS (1995) described an additional species, *Curimata acutirostris*, from the upper Rio Araguaia in the southeastern portion of the Rio Amazonas drainage basin. This species was found to be related to *C. cisandina*, *C. inornata*, and *C. roseni*. *Curimata acutirostris* shares seven of the nine synapomorphies of the clade. However, it is lacking the discrete black middorsal stripe extending from the rear of the dorsal fin to beyond the adipose fin. *Curimata acutirostris* brought the total number of valid species of the genus to 13.

The genera *Acuticurimata* (FOWLER, 1941), *Allenina* (FERNÁNDEZ-YÉPEZ, 1948), *Bitricarinata* (FERNÁNDEZ-YÉPEZ, 1948), *Bondichthys* (WHITLEY, 1953), *Lambepiedra* (FERNÁNDEZ-YÉPEZ, 1948), *Peltapleura* (FOWLER, 1906), *Semitapicis* (EIGENMANN & EIGENMANN, 1889) and *Stupens* (WHITLEY, 1954) were synonymized with *Curimata* Bosc, 1817 by VARI (1989a).

During an ichthyological survey in Santa Catarina (U. SCHULZ, H.-J. TROSCHEL and R. BERG, 1993), an additional, undescribed species of the genus was found which is described in the present paper.

## 2. Methods and Material

Methods follow VARI (1989a). Measurements were made using dial calipers on the left side of the specimens. Sections of the head and body were measured on a parallel to the sagittal plane; fin base lengths from the beginning to the end of the fin base, in a straight line. Fin lengths are the lengths of the longest rays of the fins. Morphometric data were recorded to the tenth of a millimetre. The standard length (*SL*) was measured from the upper lip to the hyp-

ural joint. In the description, measurements are given as *thousands of SL* (in Tab. 1, also as a quotient “ $x/SL$ ” which was used by VARI (1989a), and as “ $x$  in *SL*”,  $x$  = measurement). Counts of total vertebrae were taken from radiographs.

In the description, data of the paratypes follow those of the holotype, in parentheses ( ).

The type specimens of the new species are deposited in the fish collection of the Staatliches Museum für Naturkunde in Stuttgart (SMNS), and the National Museum of Natural History, Smithsonian Institution, Washington D.C. (USNM).

### 3. Systematics

#### *Curimata vari* n. sp. (Fig. 1)

Vari's Curimata

#### Material

Total: 3 specimens.

Holotype: SMNS 17508, 1 specimen, 144.3 mm SL, Brazil, Santa Catarina, Rio Cubatao, 2 km above national highway bridge, 200 m above little suspension bridge, 27°41'30"S 48°40'50"W, U. SCHULZ, H.-J. TROSCHER & R. BERG, 14 Mar. 1993.

Paratypes: SMNS 19170, 1 specimen, 125.7 mm SL, same data as holotype; USNM 345527 1 specimen, 124.0 mm SL, same data as holotype.

#### Etymology

The new species is named in honour of Dr. RICHARD P. VARI appreciating his excellent revisions of curimatid fishes.

#### Diagnosis

A moderately large species of *Curimata* with 39–42 pored scales in the lateral line, short head (227–233‰ of SL), body with a midlateral stripe from below the end of the dorsal fin to the caudal peduncle (there broadening) and a discrete black middorsal stripe from the rear of the rayed dorsal fin to beyond the adipose fin, dorsal fin with 8 branched rays, anal fin with 7 rays.

#### Description

D iii,8 (iii,8). A ii,7 (ii,7). P<sub>1</sub> ii,14 (ii,14–15). P<sub>2</sub> i,8 (i,8). C (iii),i,16,i,(iii) [(iii),i,17–18,i,(iii)]. Lateral line complete. All scales of lateral line pored; number of lateral line scales from supracleithrum to hypural joint 39 (37–42). Transverse scale rows 6 + 6 (6 + 5–6). Predorsal scales 13 (13). Total vertebrae counts 15 + 16 = 31, including Weberian apparatus. Measurements see Tab. 1.

Head very short; head length 227 (232–233); maximum head depth 253 (256–263); maximum head width 140 (130–136). Mouth terminal. Roof of mouth with three large fleshy folds with additional parallel secondary folds. Eye diameter 66 (64–66). Adipose eyelid developed, with a vertical ovoid opening over middle of eye. Interorbital distance 97 (98–101). Preorbital length 69 (68–70).

Body compressed, moderately elongate. Body depth at dorsal fin origin 344 (338–344). Body depth at anal fin origin 209 (218–223). Dorsal profile in front of the vertical through posterior nostril convex, then straight towards the tip of the supraoccipital spine, then slightly convex to the origin of the dorsal fin. Dorsal fin base straight to slightly convex, moderately inclined posteroventrally. Back between base

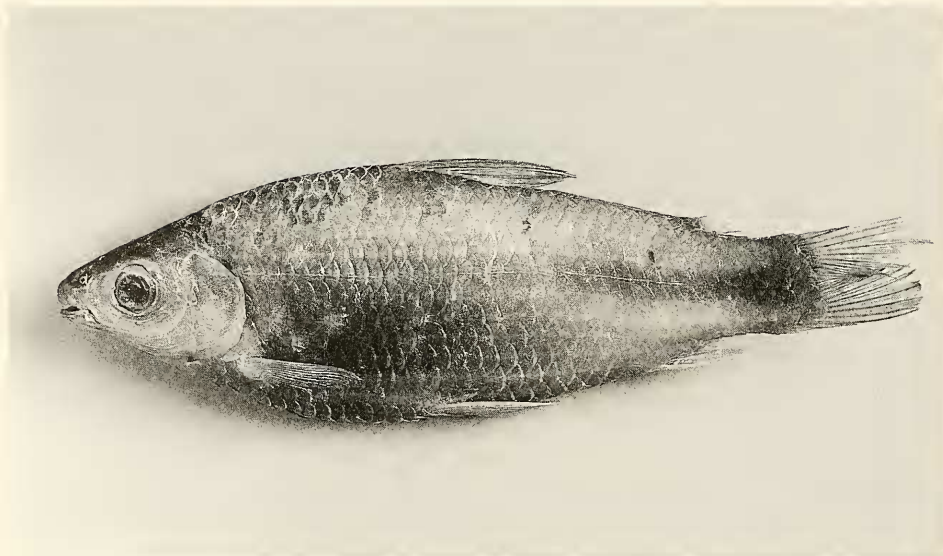


Fig. 1. *Curimata vari* n. sp.; holotype, SMNS 17508, 144.3 mm SL, Rio Cubatao, Santa Catarina, Brazil; lateral view.

of last dorsal fin ray and adipose fin origin straight to slightly convex. Caudal peduncle dorsally and ventrally slightly concave. Ventral profile of body gently curved from tip of lower jaw to caudal peduncle. Prepelvic region flattened, with lateral angles of the body wall nearly right.

Dorsal fin length 243 (245–256). Dorsal fin base length 143 (140–149). Predorsal length 430 (443–450). Anal fin length 155 (152–155). Anal fin base length 98 (89–99). Preanal length 792 (788–796). Pectoral fin length 162 (173–185). Pectoral fin nearly reaching the vertical through the beginning of the dorsal fin when laid back. Prepectoral length 227 (233–239). Pelvic fin length 192 (192–194). Prepelvic length 490 (479–480). Caudal peduncle length 138 (128–129). Caudal peduncle depth 123 (127–132). Maximum observed SL 144.3 mm. Adipose fin well developed. Caudal fin forked, with two series of scales at the basis.

Colour in alcohol: Head and body tan to light brown, darker on dorsal portions of head and body. Specimens lacking guanine on scales. Head with small melanophores on premaxilla and maxilla, around the eyes, on interorbital and supraoccipital region. Opercle with scattered melanophores. Throat light brown. Body with a dark midlateral body stripe from below the end of the dorsal fin to the caudal fin base, broadening on caudal peduncle, and a discrete black middorsal stripe from the rear of the rayed dorsal fin to beyond the adipose fin. Isolated scales on the dorsal side of the body with dark pigmentation. Dorsal fin more pigmented distally. Caudal fin with more melanophores than other fins.



Table 1. Measurements of *Curimata vari* n. sp. expressed using three different methods.

Holotype (144.3 mm SL)	% of SL	x/SL	in SL
Body depth at dorsal fin origin	344	0.34	2.91
Body depth at anal fin origin	209	0.21	4.79
Head length	227	0.23	4.40
Maximum head depth	253	0.25	3.96
Maximum head width	140	0.14	7.14
Eye diameter	66	0.07	15.26
Interorbital	97	0.10	10.30
Preorbital length	69	0.07	14.50
Prepectoral length	227	0.23	4.40
Predorsal length	430	0.43	2.32
Prepelvic length	490	0.49	2.04
Preanal length	792	0.79	1.26
Preadipose length	843	0.84	1.19
Maximum dorsal fin length	243	0.24	4.12
Dorsal fin base length	143	0.14	6.98
Maximum anal fin length	155	0.16	6.47
Anal fin base length	98	0.10	10.23
Maximum pectoral fin length	162	0.16	6.18
Maximum pelvic fin length	192	0.19	5.21
Caudal peduncle length	138	0.14	7.23
Caudal peduncle depth	123	0.12	8.10
Pectoral to pelvic fin origin	253	0.25	3.95
Pelvic fin origin to anal fin origin	313	0.31	3.20
Dorsal fin origin to hypural joint	522	0.52	1.92
Anal fin origin to hypural joint	214	0.21	4.67
Paratypes (124.0–125.7 mm SL)			
Body depth at dorsal fin origin	338–344	0.34	2.90– 2.96
Body depth at anal fin origin	218–223	0.22	4.49– 4.58
Head length	232–233	0.23	4.30
Maximum head depth	256–263	0.26	3.80– 3.90
Maximum head width	130–136	0.13–0.14	7.37– 7.70
Eye diameter	64– 66	0.06–0.07	15.24–15.70
Interorbital	98–101	0.10	9.90–10.25
Preorbital length	68– 70	0.07	14.34–14.62
Prepectoral length	233–239	0.23–0.24	4.19– 4.30
Predorsal length	443–450	0.44–0.45	2.22– 2.26
Prepelvic length	479–480	0.48	2.08– 2.09
Preanal length	788–796	0.79–0.80	1.26– 1.27
Preadipose length	831–845	0.83–0.84	1.18– 1.20
Maximum dorsal fin length	245–256	0.24–0.26	3.90– 4.09
Dorsal fin base length	140–149	0.14–0.15	6.72– 7.17
Maximum anal fin length	152–155	0.15–0.16	6.45– 6.56
Anal fin base length	89– 99	0.09–0.10	10.06–11.22
Maximum pectoral fin length	173–185	0.17–0.18	5.41– 5.77
Maximum pelvic fin length	192–194	0.19	5.16– 5.20
Caudal peduncle length	128–129	0.13	7.73– 7.81
Caudal peduncle depth	127–132	0.13	7.57– 7.85
Pectoral to pelvic fin origin	242–255	0.24–0.26	3.92– 4.13
Pelvic fin origin to anal fin origin	311–323	0.31–0.32	3.10– 3.22
Dorsal fin origin to hypural joint	541–548	0.54–0.55	1.82– 1.85
Anal fin origin to hypural joint	198–209	0.20–0.21	4.79– 5.04

### Distribution

The new species is known only from the Rio Cubatao, Santa Catarina, Brazil. At the type locality, the river was 25–50 m broad, with a current of 0.10–0.25 m/s, a natural profile, a temperature of 25.8°C, a pH of 4.5, and a conductivity of 46.0 µS.

### Relationships

*Curimata vari* n. sp. is closely related to the lineage of *C. cisandina*, *C. inornata* and *C. roseni* in the cladogram of the most parsimonious hypothesis of relationships for species of the genus *Curimata* (VARI, 1989a). This lineage is characterized by several synapomorphies, including a discrete black middorsal stripe reaching from the rear of the rayed dorsal fin to beyond the adipose fin; that stripe is absent in the sister clade *C. aspera*, *C. cerasina*, *C. mivartii* and the remaining species of the genus. *Curimata vari* can be distinguished from the closely related lineage of *C. cisandina*, *C. inornata* and *C. roseni* by the low number of pored lateral line scales (37–42) and the low body depth (338–344). Additionally, *C. cisandina* has more branched anal fin rays (10–12).

*Curimata vari* is closely related to *C. acutirostris*, a species recently described by VARI & REIS (1995). However, one of the characters, the black middorsal stripe, is lacking in *C. acutirostris*. *Curimata acutirostris* has more pored lateral line scales (54–56) than *C. vari*, and more branched anal fin rays (9–11).

*Curimata ocellata* can be distinguished from *C. vari* and the other species by an elongate fusiform body shape. Additionally, all species of the genus except *C. ocellata* and *C. mivartii* have a distinct flattened prepelvic region with lateral angles of the body wall nearly right.

*Curimata vari* is lacking the series of vertical bars on the dorsal portion of the body that is present in *C. vittata*, and elongate dorsal and ventral rays of the caudal fin and filamentous anterior rays of the dorsal fin which are present in *C. knerii* and *C. cyprinoides*.

### Remarks

In his revision of *Curimata*, VARI (1989a) restricted the range of the genus to the tropical regions of South America between 11°N and 6°45'S. A single species, *Curimata macrops* from the Rio Parnaíba (6°45'S), was found south of the Amazon system. As *Curimata vari* n. sp. was collected in Santa Catarina, southeastern Brazil, it represents an enormous southern extension of the range of the genus. It is the only species of the genus known from a subtropical latitude. Two close relatives *C. cisandina* and *C. inornata* are found in the Rio Amazonas system; another, *C. roseni* in the Rio Negro drainage.

### 4. Acknowledgments

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